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मानक

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IS/ISO 7572 (1984): Conditions of Acceptance and Installation for Work-holding Fixed Tables of Machine Tools [PGD 3: Machine Tools]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

मशीन औजारों के स्थिर पटलों पर कार्य करने के लिए
स्वीकरण शर्तें और संस्थापन

Indian Standard

**CONDITIONS OF ACCEPTANCE AND
INSTALLATION FOR WORK-HOLDING FIXED
TABLES OF MACHINE TOOLS**

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BUREAU OF INDIAN STANDARDS
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NATIONAL FOREWORD

This Indian Standard which is identical with ISO 7572 : 1984 'Conditions of Acceptance and Installation for Work-holding Fixed Tables of Machine Tools', issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendation of the Machine Tools Basics and Modular Units Sectional Committee now titled as Machine Tools Sectional Committee and approval of the Production Engineering Division Council.

The text of the ISO standard has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker in the International Standard while in Indian Standards, the current practice is to use point (.) as the decimal marker.
- c) Inch dimensions as given in the above ISO standard have not been included as the same are not prevalent in the country.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed along with their degree of equivalence for the editions indicated.

<i>International Standards</i>	<i>Indian Standards</i>	<i>Degree of Correspondance</i>
ISO/R 230 (Since revised as ISO 230/1-1986) Acceptance code for machine tools — Part 1 : Geometric accuracy of machines operating under no-load or finishing conditions	IS 2063 : 1988 Acceptance code for machine tools—Geometric accuracy of machines operating under no-load or finishing conditions (<i>first revision</i>)	Identical
ISO 3070/0-1982 Acceptance conditions for boring and milling machines with horizontal spindle — Testing of the accuracy — Part 0 : General introduction	IS 11958 (Part 0) Test chart for boring and milling machine with horizontal spindle: Part 0 General introduction (Under preparation)	do
ISO 3070/2-1978 Test conditions for boring and milling machines with horizontal spindle — Testing of the accuracy — Part 2 : Floor type machines	IS 11958 (Part 2) : 1990 Test chart for boring and milling machines with horizontal spindles : Part 2 Floor type machines	do

Indian Standard

CONDITIONS OF ACCEPTANCE AND INSTALLATION FOR WORK-HOLDING FIXED TABLES OF MACHINE TOOLS

1 Scope and field of application

This International Standard defines the work-holding fixed tables of machine tools. It also describes, with reference to ISO/R 230, both geometrical tests and the conditions of installation of these fixed tables and gives the corresponding permissible deviations which apply for two classes of accuracy (qualities A and B).

2 References

ISO/R 230, *Machine tool test code*.

ISO 3070/0, *Test conditions for boring and milling machines with horizontal spindle — Testing of the accuracy — Part 0 : General introduction*.

ISO 3070/2, *Test conditions for boring and milling machines with horizontal spindle — Testing of the accuracy — Part 2 : Floor type machines*.

3 Definition

work-holding fixed table (sometimes called a floor-plate) for machine tools: Plate provided with inner ribs and T slots on its "functional surface".

The dimensions of these fixed tables are variable. Very large fixed tables are often made up of several parts, which may or may not be identical.

Securing to the ground is ensured by fixing bolts. Levelling is carried out with the aid of a special device, for example : a special screw.

4 Mounting and use

This fixed table is normally mounted at the side of the bed of the corresponding machine which is often a milling machine of great capacity or a boring and milling machine (see figure 1).

It is placed so that the axis of the T slots are perpendicular or parallel to the spindle axis.

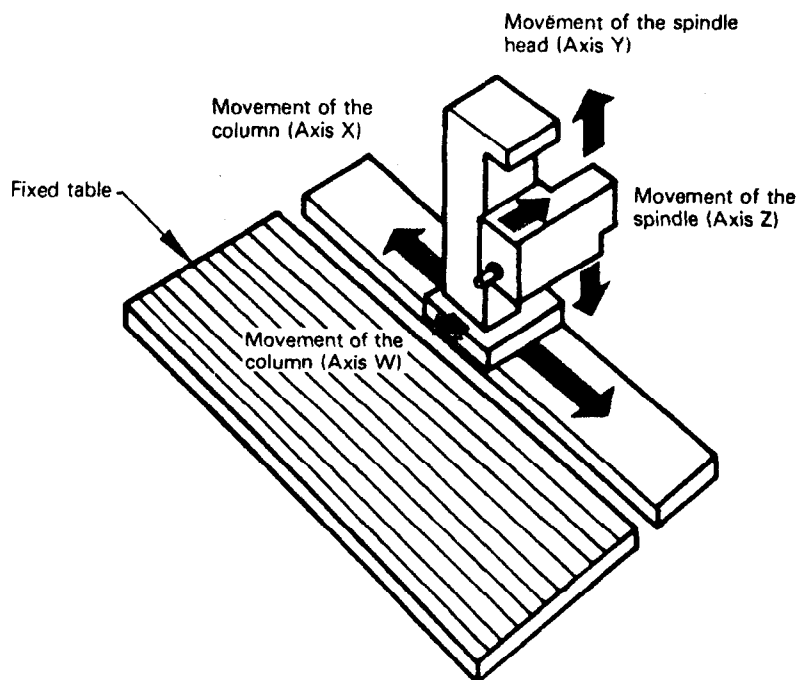


Figure 1

5 Preliminary remarks

5.1 In this international Standard, all dimensions and permissible deviations are expressed in millimetres.

5.2 To apply this International Standard, reference should be made to ISO/R 230, especially for description of measuring methods and recommended accuracy of testing equipment.

5.3 When establishing the tolerance for a measuring range different from that given in this International Standard (see clause 2.311 in

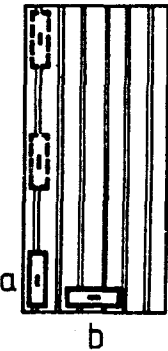
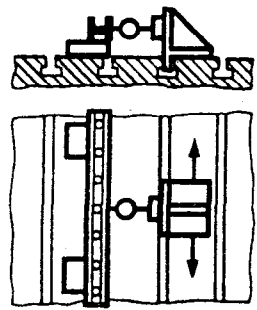
ISO/R 230) it should be taken into consideration that the minimum value of tolerance is 0.01 mm.

5.4 The data concerning 6.2 "Conditions of installation" of this International Standard are intended only to serve as a guide for the user for installation of the fixed table at the side of the corresponding machine.

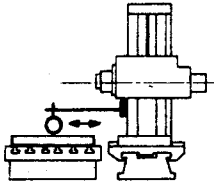
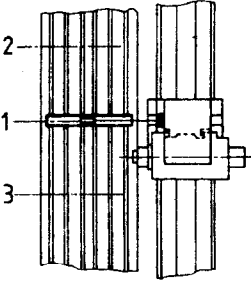
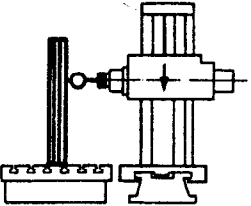
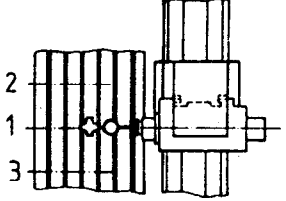
The permissible deviations which are given take into account the fact that the setting up of the work piece before machining is always carried out in relation to the machine and not in relation to the fixed table.

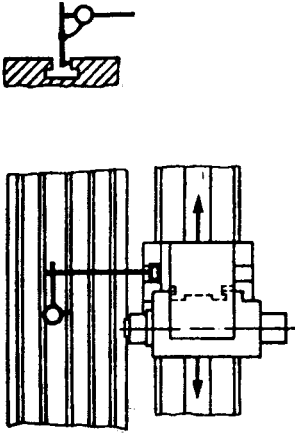
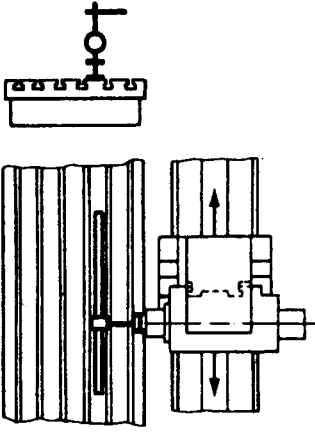
6 Conditions of acceptance, installation and of tolerances

6.1 Geometrical tests

No.	Diagram	Object	Permissible deviation mm	Measuring instruments	Observation and references to the test code ISO/R 230
G1		Checking of flatness of the surface of the fixed table.	Fixed table—Quality A 0.05 up to 1 000 For each 1 000 mm increase in length add to the preceding tolerance 0.02 Maximum permissible deviation: 0.15 Fixed table—Quality B 0.08 up to 1 000 For each 1 000 mm increase in length add to the preceding tolerance 0.03 Maximum permissible deviation: 0.4	Precision level or optical methods	Clauses 5.322 and 5.323
G2		Checking of straight- ness of the median or reference T slot or the reference face of the fixed table.	Fixed table—Quality A 0.02 for any measuring length of 1 000 Maximum permissible deviation: 0.1 Fixed table—Quality B 0.035 for any measuring length of 1 000 Maximum permissible deviation: 0.3	Straightedge and dial gauge or microscope and taut wire or optical methods	Clauses 5.212, 5.212.1, 5.212.22, 5.212.3 or 5.232 The straightedge may be set directly on the fixed table.

6.2 Condition of installation

No.	Diagram	Object	Permissible deviation mm	Measuring instruments	Observation and reference to the test code ISO/R 230
G3	  ALTERNATIVE for the case where the column is not provided with a movement along the W axis  	Checking of parallelism of the surface of the fixed table to the column longitudinal movement (along the W axis). Checking of squareness of the surface of the fixed table with respect to the vertical movement of the spindle head (along the Y axis) in a vertical plane passing through the spindle axis.	Fixed table—Quality A 0.065 for each measuring length of 1 000 Fixed table—Quality B 0.13 for each measuring length of 1 000 Fixed table—Quality A 0.10/1 000 Fixed table—Quality B 0.20/1 000	Straight and dial gauge or optical methods Precision square and dial gauge or optical methods	Clauses 5.422.1 and 5.422.22 The dial gauge may touch the functional surface of a straightedge laid on the table. This checking shall be carried out for three positions of the column along the bed: one intermediate position (1); and two positions at the extremities (2 and 3) Clause 5.522.2 Column locked when taking measurements. This checking shall be carried out for three positions of the column along the bed: one intermediate position (1); and two positions at the extremities (2 and 3).

No.	Diagram	Object	Permissible deviation mm	Measuring instruments	Observation and references to the test code ISO/R 230
G4		Checking of parallelism of the median (or reference) T slot or any other reference face of the fixed table to the transverse movement of the column (along the X axis)	Fixed table—Quality A 0.09 up to 1 000 for each 1 000 mm increase in length add to the preceding tolerance 0.025 Maximum permissible deviation: 0.25 Fixed table—Quality B 0.10 up to 1 000 For each 1 000 mm increase in length add to the preceding tolerance 0.04 Maximum permissible deviation: 0.45	Dial gauge or optical methods	Clauses 5.422.1 and 5.422.22
G5		Checking of parallelism of the surface of the fixed table to the transverse movement of the column (along the X axis)	Fixed table—Quality A 0.10 up to 1 000 For each 1 000 mm increase in length add to the preceding tolerance 0.25 Maximum permissible deviation: 0.30 Fixed table—Quality B 0.15 up to 1 000 For each 1 000 mm increase in length add to the preceding tolerance 0.04 Maximum permissible deviation: 0.60	Straightedge and dial gauge or optical methods	Clauses 5.422.1 and 5.422.22 The dial gauge may touch the functional surface of a straightedge laid on the table.

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